

Office of Water Template Language

Indexing Data to the National Hydrography Dataset (NHD)

The following text is a starting point for language to insert into contracts, ICRs, and direct field activities that require NHD indexing as specified in OW Information Technology and Data Reporting Requirements. This text may need to be modified for specific contracts and ICRs. Questions on modifying this text should be referred to the OW Senior Resource Information Management Officer, Andy Battin.

Introduction

The National Water Program identified indexing water information to the National Hydrography Dataset (NHD) as a top priority at the 2001 Annual Water Meeting. By using a common NHD framework, water program managers and staff are able to observe and analyze the effectiveness of programs at meeting water quality objectives for specific water bodies (lakes, rivers,...).

This ability to analyze specific water bodies is due to the NHD reach indexing protocol, which precisely locates water features of interest (grant activity area, impaired water, monitoring station,...) using a unique reach number and an exact position on the reach. A reach address is analogous to a street address number. Each water feature of interest indexed to NHD may comprise part of a NHD reach, an individual NHD reach, or a collection of NHD reaches and or parts of reaches - much like a building can occupy a linear street extent of varying length. Additional NHD information and data is available from USGS, <http://nhd.usgs.gov/>. Additional information on efforts to index water program information to NHD is available from EPA at <http://www.epa.gov/waters>.

Methods for NHD Indexing

EPA provides two methods for indexing water program information to NHD:

- 1) Desktop NHD Reach Indexing Tool (RIT)
- 2) Web-based NHD Reach Indexing Tool (WebRIT)

The NHD-Reach Indexing Tool (RIT) operates in the popular desktop ArcView software. Features and tools in the RIT provide easy methods for creating standard NHD reach address records and associated metadata (descriptive information about how the NHD indexing was performed). The RIT can also be used to delineate user-defined polygons such as wetlands and large estuaries.. Information on the RIT - including RIT download, standard data / metadata structures, and training - is available at <http://www.epa.gov/waters/tools/index.html>.

The WebRIT, which does not require GIS training or software, is easier to use but currently performs only some of the functions of the desktop RIT. Information on the WebRIT is available at <http://www.epa.gov/waters/webrit/>.

Using either tool, the protocol for indexing involves:

- 1) For data submitted to EPA, each unique feature of interest (grant activity area, impaired water, monitoring station,...) should have its location relative to NHD specified using the NHD reach number and the position(s) along the reach(es).
- 2) Each unique feature of interest that is addressed to NHD should have a unique identifier that follows the rules of the program database that receives the programmatic data. For example, if a set of water quality standards is being submitted to EPA, each water quality standard that is addressed to NHD should have a unique identification number following the rules of the Water Quality Standards Database.
- 3) NHD reach address information should be accompanied by metadata that describes how the NHD reach addressing was performed. One set of metadata records should be submitted for each unique method or combination of methods used for addressing. If the same addressing methodology is used for an entire data set, then only one set of metadata records is required.

Standard data and metadata structures for NHD addressing are available at <http://www.epa.gov/waters/doc/index.html>.

EPA recognizes that some states and territories may work with other spatial hydrographic data, however, states and territories should still provide NHD addresses for water features of interest. NHD is currently being developed at higher resolutions and where complete jurisdictions may use these data. EPA will translate data referenced to higher resolution NHD to the current nationally available NHD. States and territories interested in developing higher resolution NHD are encouraged to work with United States Geological Survey (USGS).

EPA provides hands on training to interested jurisdiction on the protocols for linking water features/information of interest to the NHD.

NHD addresses and other Geographic Information for Water Features of Interest

Water Type	GIS Coverage	Database Metadata
Rivers	Features of interest related to Rivers should be included as a point or linear feature in a GIS coverage. NHD format is preferred.	Include standard metadata requirements for NHD event tables. A list of these requirements can be found at: http://www.epa.gov/waters/doc/index.html . Otherwise provide Federal Geographic Data Committee (FGDC) "light" metadata about the coverage, as well as the location of features of interest, with unique identifies as appropriate for each feature that corresponds to a record that is submitted to EPA programmatic databases. FGDC metadata requirements can be found at: http://www.fgdc.gov/metadata/contstan.html .
Lakes	Features of interest related to Lakes can be included as a point, linear, or polygon feature in a GIS coverage. NHD format is preferred.	Include standard metadata requirements for NHD event tables. A list of these requirements can be found at: http://www.epa.gov/waters/doc/index.html . Otherwise provide Federal Geographic Data Committee (FGDC) "light" metadata about the coverage, as well as the location of features of interest, with unique identifies as appropriate for each feature that corresponds to a record that is submitted to EPA programmatic databases. FGDC metadata requirements can be found at: http://www.fgdc.gov/metadata/contstan.html .
Coastal Waters	Features of interest related to coast lines should be included as a point or linear feature in a GIS coverage. NHD format is preferred. Other near coastal units (e.g., shellfish beds, estuaries,...) should be reported as polygons.	Include standard metadata requirements for NHD event tables. A list of these requirements can be found at: http://www.epa.gov/waters/doc/index.html . Otherwise provide Federal Geographic Data Committee (FGDC) "light" metadata about the coverage, as well as the location of features of interest, with unique identifies as appropriate for each feature that corresponds to a record that is submitted to EPA programmatic databases. FGDC metadata requirements can be found at: http://www.fgdc.gov/metadata/contstan.html .
Aquifers	Features of interest related to Aquifers should be included as a polygon feature in a GIS coverage.	Include Federal Geographic Data Committee (FGDC) "light" metadata about the coverage, as well as the location of features of interest, with unique identifies as appropriate for each feature that corresponds to a record that is submitted to EPA programmatic databases. FGDC metadata requirements can be found at: http://www.fgdc.gov/metadata/contstan.html .
Land-based Polygons	Land-based polygons, such as Concentrated Animal Feedlots or Wetlands, should be included as a polygon feature in a GIS coverage.	Include Federal Geographic Data Committee (FGDC) "light" metadata about the coverage, as well as the location of features of interest, with unique identifies as appropriate for each feature that corresponds to a record that is submitted to EPA programmatic databases. FGDC metadata requirements can be found at: http://www.fgdc.gov/metadata/contstan.html .